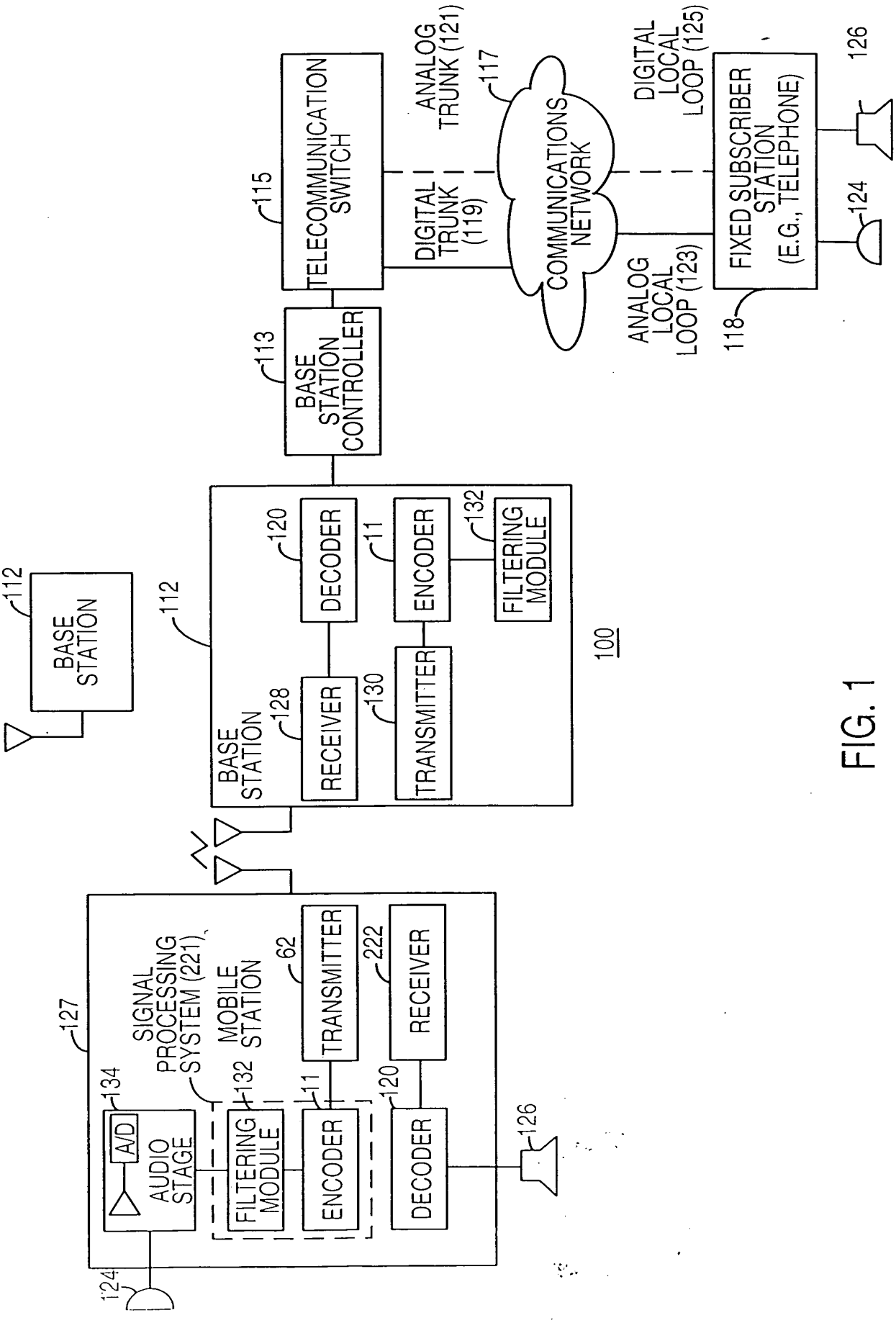

100
BASE STATION
112
BASE STATION
112
RECEIVER
128
TRANSMITTER
130
DECODER
120
ENCODER
11
FILTERING MODULE
132
BASE STATION CONTROLLER
113
TELECOMMUNICATION SWITCH
115
DIGITAL TRUNK (119)
ANALOG TRUNK (121)
117
COMMUNICATIONS NETWORK
ANALOG LOCAL LOOP (123)
DIGITAL LOCAL LOOP (125)
FIXED SUBSCRIBER STATION (E.G., TELEPHONE)
118
126
124
127
SIGNAL PROCESSING SYSTEM (221)
MOBILE STATION
AUDIO STAGE
A/D
134
FILTERING MODULE
132
ENCODER
11
TRANSMITTER
62
DECODER
120
RECEIVER
222
126
124

FIG. 1

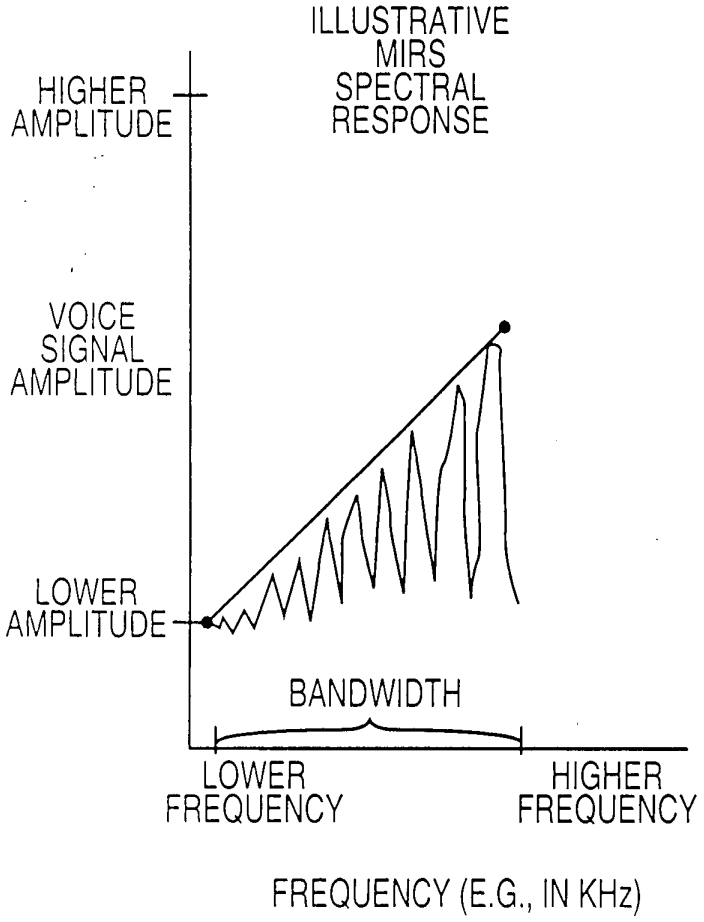


FIG. 2A

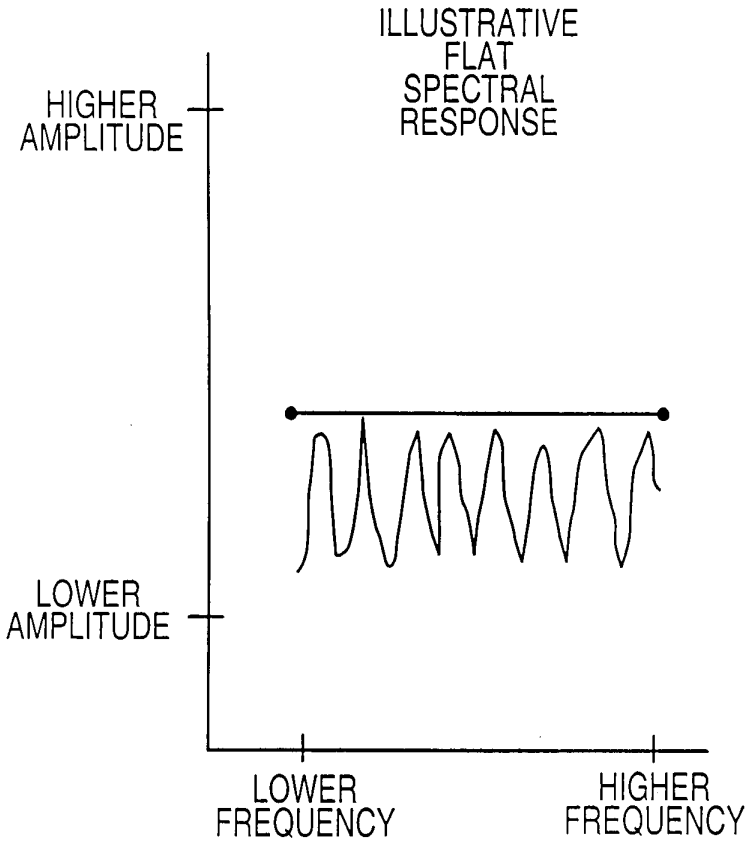


FIG. 2B

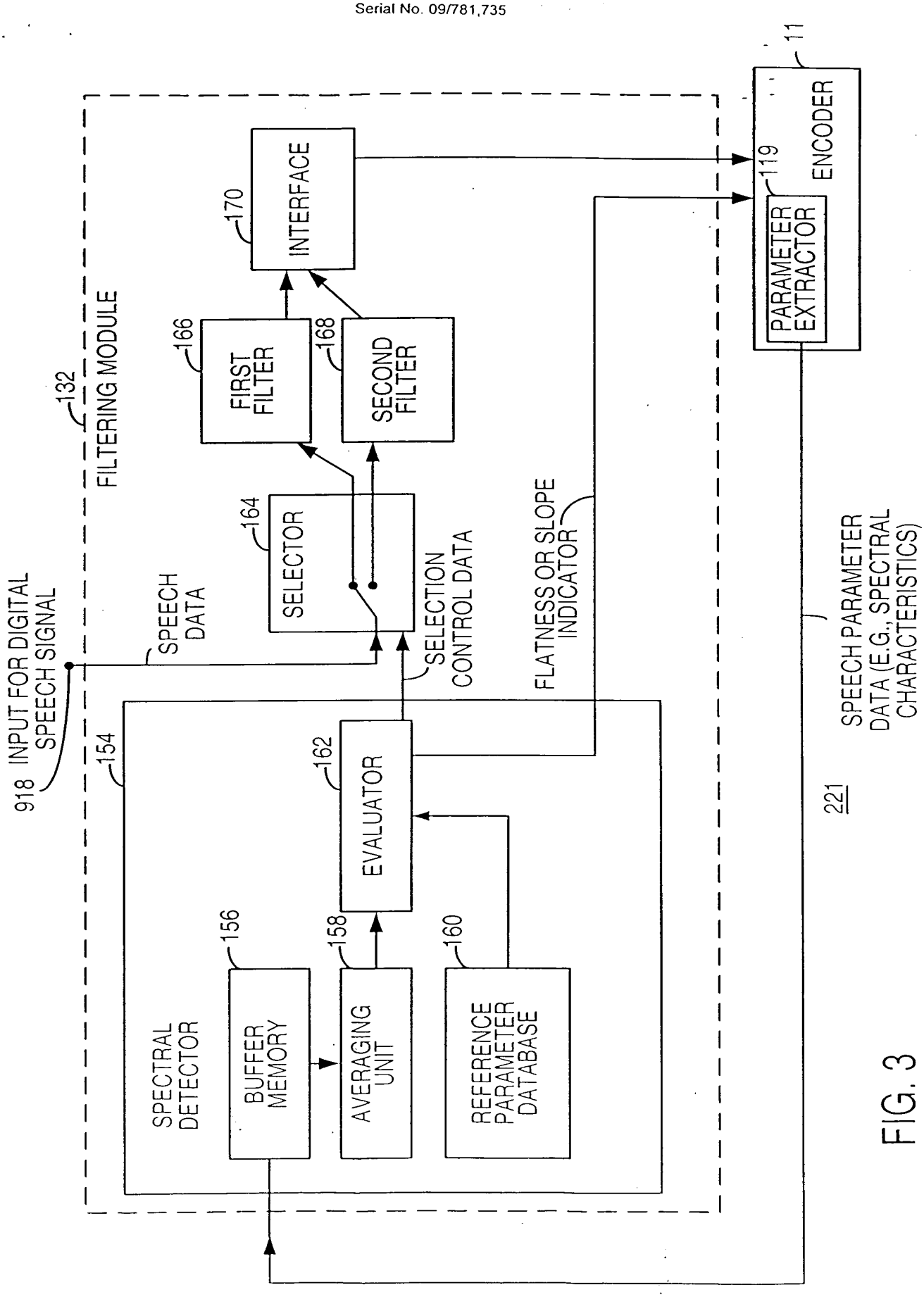

11
ENCODER
119
PARAMETER EXTRACTOR
170
INTERFACE
132
FILTERING MODULE
166
FIRST FILTER
168
SECOND FILTER
164
SELECTOR
SELECTION CONTROL DATA
FLATNESS OR SLOPE INDICATOR
SPEECH DATA
INPUT FOR DIGITAL SPEECH SIGNAL
918
154
162
EVALUATOR
156
158
160
SPECTRAL DETECTOR
BUFFER MEMORY
AVERAGING UNIT
REFERENCE PARAMETER DATABASE
221
SPEECH PARAMETER DATA (E.G., SPECTRAL CHARACTERISTICS)

FIG. 3

FIG. 4A

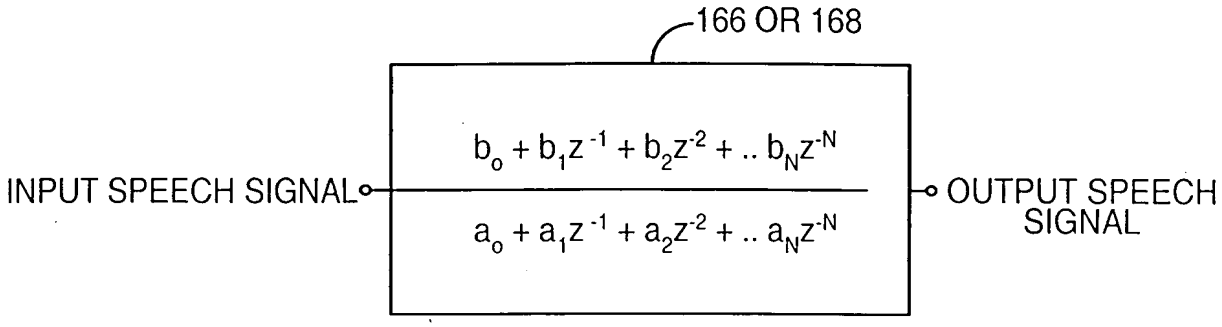


FIG. 4B

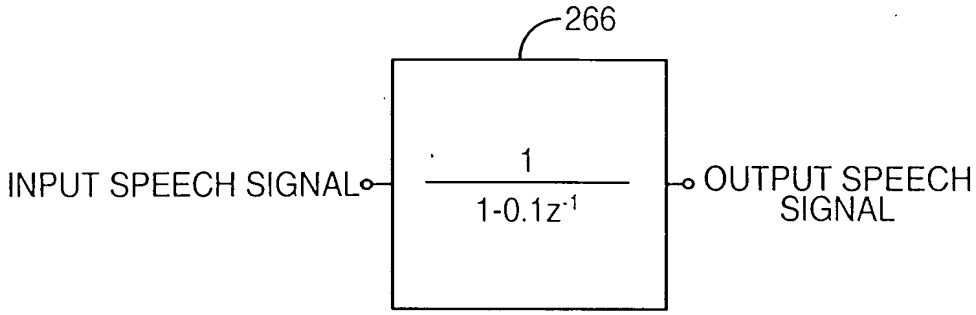
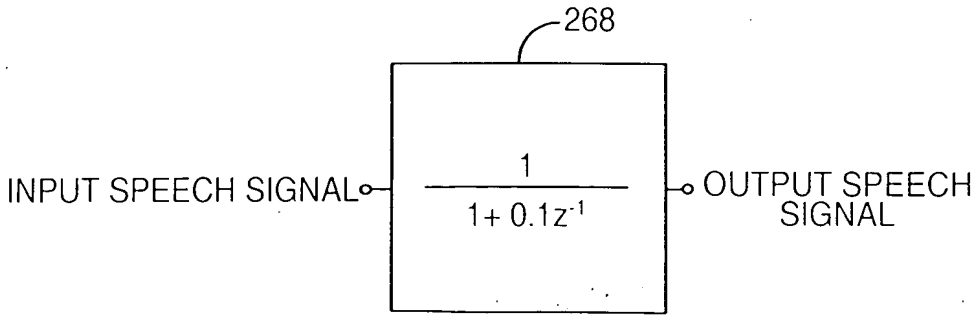


FIG. 4C



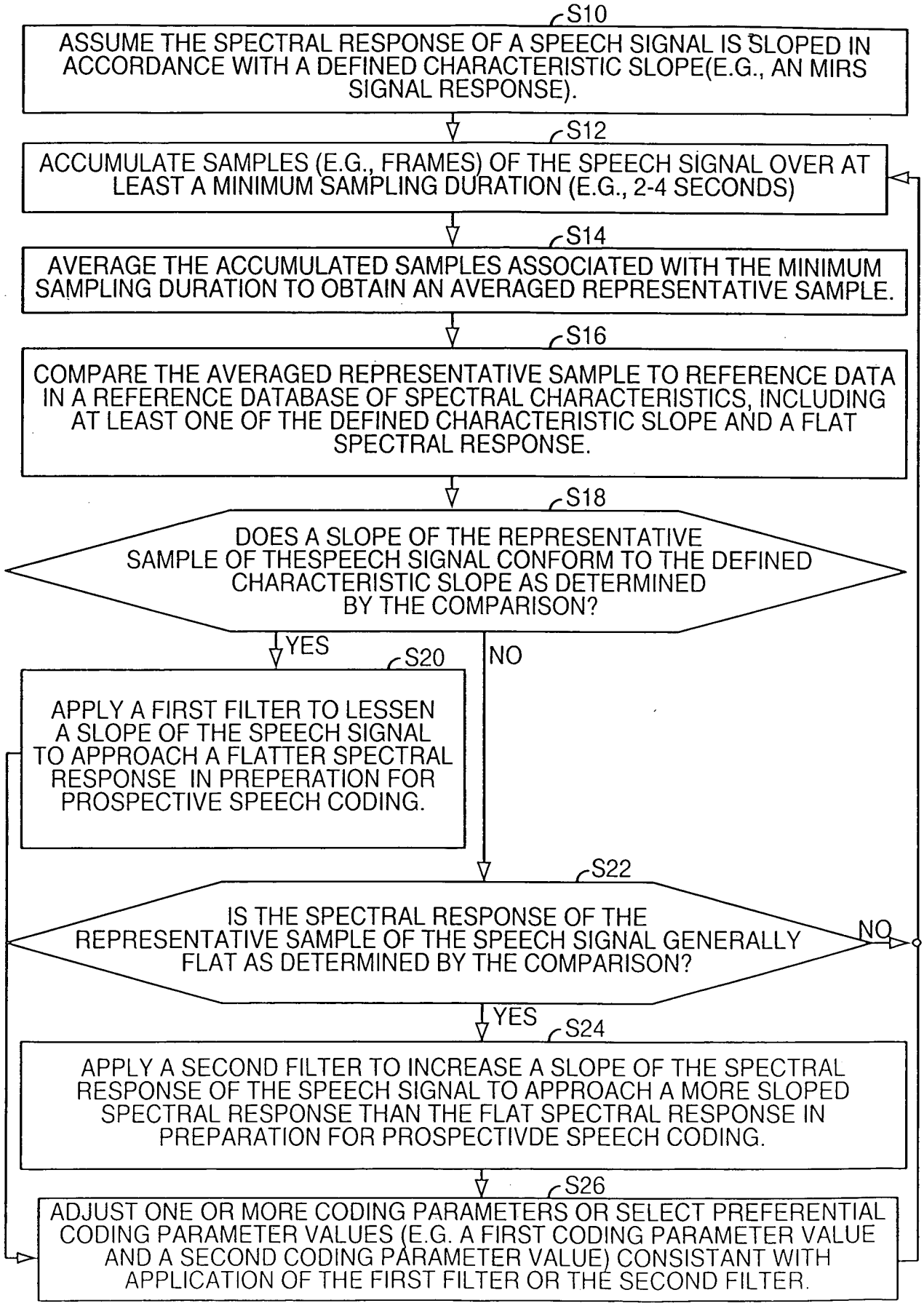

S10
ASSUME THE SPECTRAL RESPONSE OF A SPEECH SIGNAL IS SLOPED IN ACCORDANCE WITH A DEFINED CHARACTERISTIC SLOPE(E.G., AN MIRS SIGNAL RESPONSE).
S12
ACCUMULATE SAMPLES (E.G., FRAMES) OF THE SPEECH SIGNAL OVER AT LEAST A MINIMUM SAMPLING DURATION (E.G., 2-4 SECONDS)
S14
AVERAGE THE ACCUMULATED SAMPLES ASSOCIATED WITH THE MINIMUM SAMPLING DURATION TO OBTAIN AN AVERAGED REPRESENTATIVE SAMPLE.
S16
COMPARE THE AVERAGED REPRESENTATIVE SAMPLE TO REFERENCE DATA IN A REFERENCE DATABASE OF SPECTRAL CHARACTERISTICS, INCLUDING AT LEAST ONE OF THE DEFINED CHARACTERISTIC SLOPE AND A FLAT SPECTRAL RESPONSE.
S18
DOES A SLOPE OF THE REPRESENTATIVE SAMPLE OF THESPEECH SIGNAL CONFORM TO THE DEFINED CHARACTERISTIC SLOPE AS DETERMINED BY THE COMPARISON?
YES
NO
S20
APPLY A FIRST FILTER TO LESSEN A SLOPE OF THE SPEECH SIGNAL TO APPROACH A FLATTER SPECTRAL RESPONSE IN PREPERATION FOR PROSPECTIVE SPEECH CODING.
S22
IS THE SPECTRAL RESPONSE OF THE REPRESENTATIVE SAMPLE OF THE SPEECH SIGNAL GENERALLY FLAT AS DETERMINED BY THE COMPARISON?
NO
YES
S24
APPLY A SECOND FILTER TO INCREASE A SLOPE OF THE SPECTRAL RESPONSE OF THE SPEECH SIGNAL TO APPROACH A MORE SLOPED SPECTRAL RESPONSE THAN THE FLAT SPECTRAL RESPONSE IN PREPARATION FOR PROSPECTIVDE SPEECH CODING.
S26
ADJUST ONE OR MORE CODING PARAMETERS OR SELECT PREFERENTIAL CODING PARAMETER VALUES (E.G. A FIRST CODING PARAMETER VALUE AND A SECOND CODING PARAMETER VALUE) CONSISTANT WITH APPLICATION OF THE FIRST FILTER OR THE SECOND FILTER.

FIG. 5

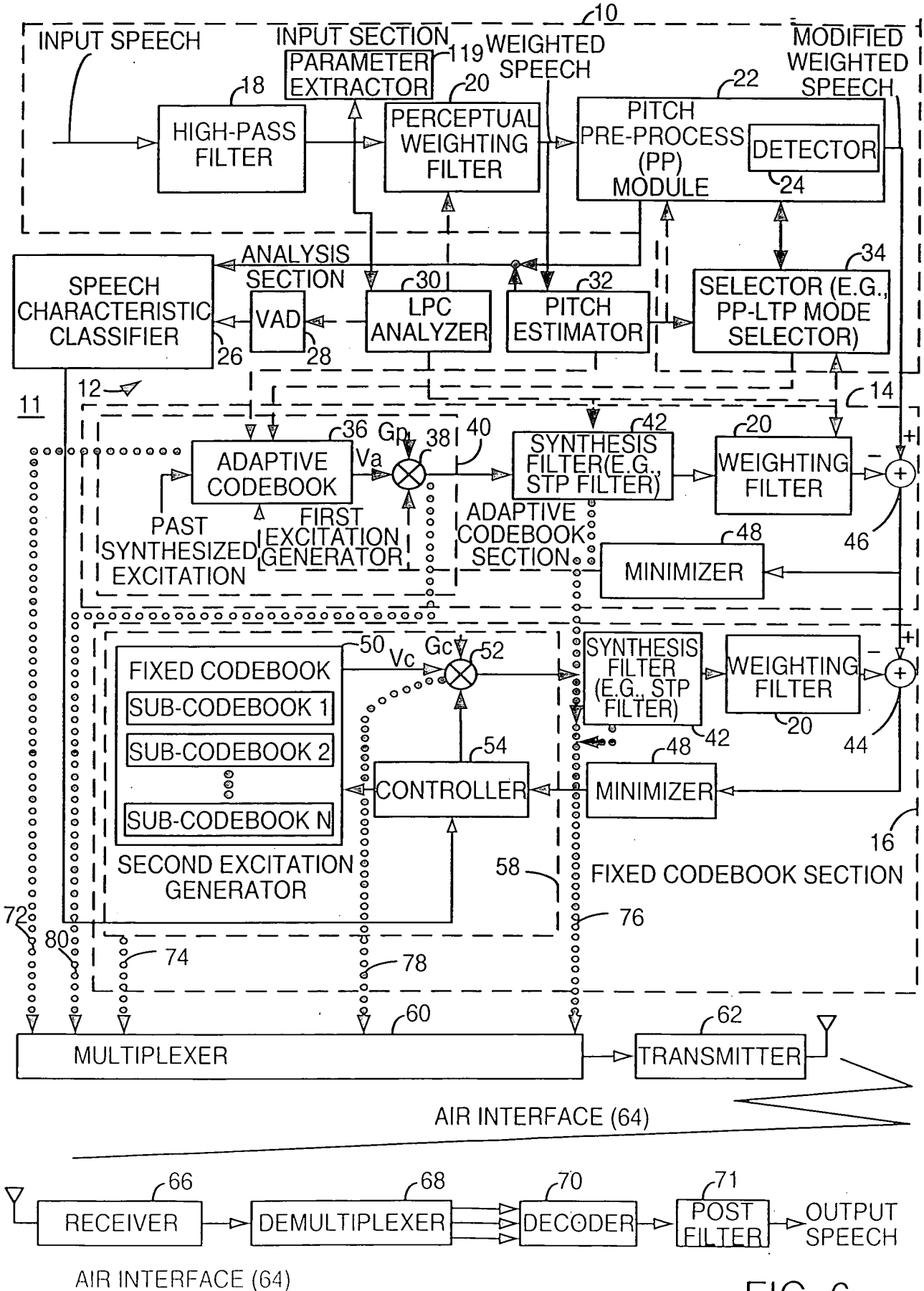

10
INPUT SPEECH
INPUT SECTION
PARAMETER EXTRACTOR
119
WEIGHTED SPEECH
MODIFIED WEIGHTED SPEECH
18
HIGH-PASS FILTER
20
PERCEPTUAL WEIGHTING FILTER
22
PITCH PRE-PROCESS (PP) MODULE
DETECTOR
24
ANALYSIS SECTION
34
SPEECH CHARACTERISTIC CLASSIFIER
VAD
30
LPC ANALYZER
32
PITCH ESTIMATOR
SELECTOR (E.G., PP-LTP MODE SELECTOR)
26
28
11
12
14
36
Gp
38
40
42
20
ADAPTIVE CODEBOOK
Va
SYNTHESIS FILTER(E.G., STP FILTER)
WEIGHTING FILTER
PAST SYNTHESIZED EXCITATION
FIRST EXCITATION GENERATOR
ADAPTIVE CODEBOOK SECTION
48
46
MINIMIZER
50
Vc
Gc
52
FIXED CODEBOOK
SUB-CODEBOOK 1
SUB-CODEBOOK 2
SUB-CODEBOOK N
SYNTHESIS FILTER (E.G., STP FILTER)
WEIGHTING FILTER
20
42
44
54
48
CONTROLLER
MINIMIZER
16
SECOND EXCITATION GENERATOR
58
FIXED CODEBOOK SECTION
72
80
74
76
78
60
62
MULTIPLEXER
TRANSMITTER
AIR INTERFACE (64)
66
68
70
71
RECEIVER
DEMULTIPLEXER
DECODER
POST FILTER
OUTPUT SPEECH
AIR INTERFACE (64)

FIG. 6

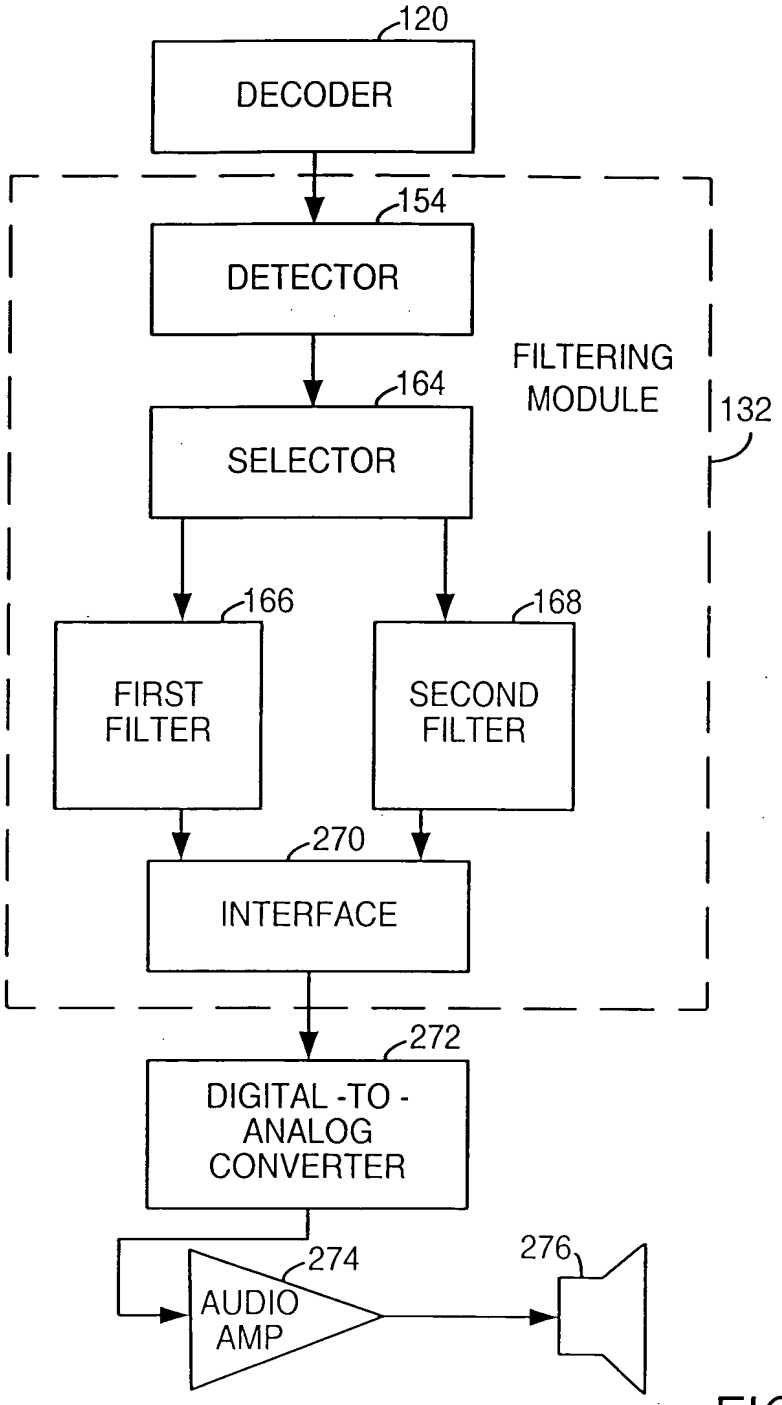

120
DECODER
154
DETECTOR
FILTERING MODULE
132
164
SELECTOR
166
FIRST FILTER
168
SECOND FILTER
270
INTERFACE
272
DIGITAL -TO - ANALOG CONVERTER
274
AUDIO AMP
276

FIG. 7

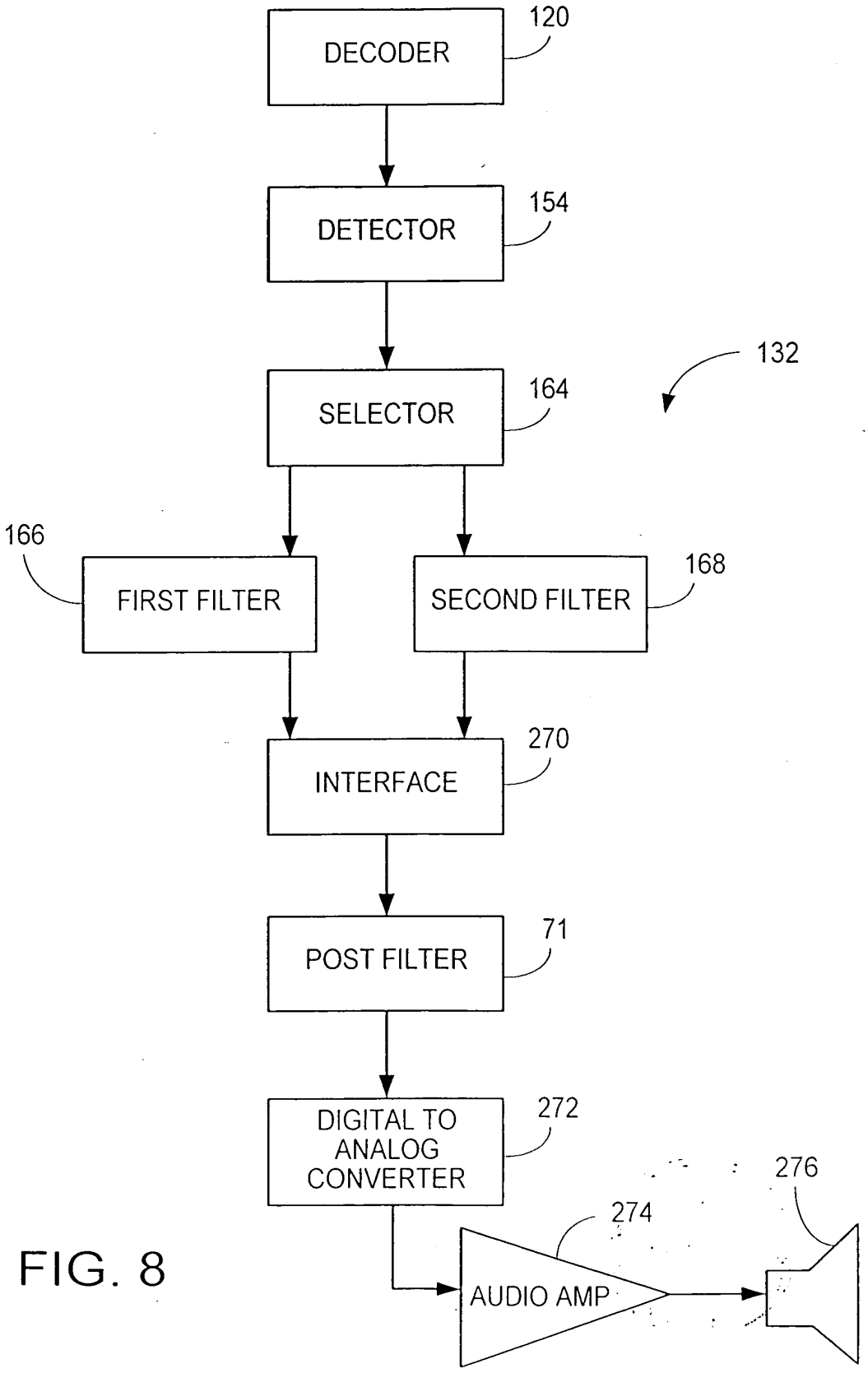

DECODER
120
DETECTOR
154
SELECTOR
164
132
166
FIRST FILTER
SECOND FILTER
168
INTERFACE
270
POST FILTER
71
DIGITAL TO ANALOG CONVERTER
272
276
274
AUDIO AMP

FIG. 8